

## INTERNAL COMBUSTION ENGINE TRANSIENT FUEL CONTROL

### ABSTRACT

5 An apparatus and method for improving the transient response of a spark-  
ignited fuel-injected internal combustion engine is disclosed. This is accomplished  
by employing one or more novel capillary fuel injectors. These devices are port fuel  
injectors modified by inserting one or more relatively small diameter heated tubular  
capillaries between the fuel line and a conventional injector. Sufficient heating can  
be produced so that flash vaporization occurs as the fuel exits the injector. The  
10 heaters are turned on using control algorithms that can be based on exhaust gas  
oxygen concentration, load on the engine, and accelerator pedal position.

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